

CLAIMS

1. A method of determining a motion vector for a macroblock of a present image from a previous image, the method comprising:

selecting a first set of pixel blocks in the previous image;

computing a first difference measure for each of the pixel blocks in the first set of pixel blocks to form a plurality of first difference measures;

determining a first closest matching pixel block having a lowest first difference measure;

selecting a second set of pixel blocks in the previous image;

computing a second difference measure for each of the pixel blocks in the second set of pixel blocks to form a plurality of second difference measures;

determining a second closest matching pixel block having a lowest second difference measure;

computing a first accurate difference measure for the first closest matching pixel block, wherein the first accurate difference measure is a member of a plurality of accurate difference measures;

computing a second accurate difference measure for the second closest matching pixel block, wherein the second accurate difference measure is a member of the plurality of accurate difference measures;

selecting the first closest matching pixel block as a origin block when the first accurate difference measure is less than or equal to other members of the plurality of difference measure;

selecting the second closest matching pixel block as the origin block when the second accurate difference measure is less than the first accurate difference measure and less

than or equal to other members of the plurality of difference measures; and

computing the motion vector using the origin block and the macroblock.

2. The method of Claim 1, further comprising:

selecting a third set of pixel blocks in the previous image;

computing a third difference measure for each of the pixel blocks in the third set of pixel blocks to form a plurality of third difference measures;

determining a third closest matching pixel block having a lowest third difference measure;

computing a third accurate difference measure for the third closest matching pixel block, wherein the third accurate difference measure is a member of the plurality of accurate difference measures; and

selecting the third closest matching pixel block as the origin block when the third accurate difference measure is less than the first accurate difference and the second accurate difference measure and less than or equal to other members of the plurality of difference measures.

3. The method of Claim 2, further comprising:

selecting a fourth set of pixel blocks in the previous image;

computing a fourth difference measure for each of the pixel blocks in the fourth set of pixel blocks to form a plurality of fourth difference measures;

determining a fourth closest matching pixel block having a lowest fourth difference measure;

computing a fourth accurate difference measure for the fourth closest matching pixel block, wherein the fourth accurate difference measure is a member of the plurality of accurate difference measures; and

selecting the fourth closest matching pixel block as the origin block when the fourth accurate difference measure is less than the first accurate difference, the second accurate difference measure, and the third accurate difference measure and less than or equal to other members of the plurality of difference measures.

4. The method of Claim 1, wherein the computing a first accurate difference measure for the first closest matching pixel block; comprises

computing an absolute difference between each pixel in both the closest matching pixel block and a predetermined pattern of pixels with a corresponding pixel in the macroblock to create a plurality of accurate absolute differences;

summing the plurality of accurate absolute differences to compute the first accurate difference measure.

5. The method of Claim 4, wherein the predetermined pattern of pixels includes less than or equal to half of the pixels in the previous image.

6. The method of Claim 4, wherein the predetermined pattern of pixels includes a fourth of the pixels of the previous image.

7. The method of Claim 4, wherein the y-coordinate modulo four of each pixel in the predetermined pattern of pixels has a y-coordinate is equal to three or zero.

8. The method of Claim 4, wherein computing a first difference measure for each of the pixel blocks in the first set of pixel blocks to form a plurality of first difference measures comprises:

 computing an absolute difference between each pixel in both the pixel block and a subpattern of the predetermined pattern of pixels with a corresponding pixel in the macroblock to create a plurality of absolute differences;
 summing the plurality of absolute differences to compute the first difference measure.

9. The method of Claim 1, wherein the computing a first accurate difference measure for the first closest matching pixel block; comprises

 computing a squared difference between each pixel in both the closest matching pixel block and a predetermined pattern of pixels with a corresponding pixel in the macroblock to create a plurality of accurate absolute differences;

 summing the plurality of squared absolute differences to compute the first accurate difference measure.